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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/588,525	11/12/2008	Sonke Kock	43315-233140	9579

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EXAMINER	
LOUIE, WAE LENNY	

ART UNIT	PAPER NUMBER
3661	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/588,525	KOCK ET AL.	
	Examiner	Art Unit	
	WAE LOUIE	3661	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 August 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1-21 and 23-27* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *1-21 and 23-27* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☒ The drawing(s) filed on *07 August 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/7/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-21, 23-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over McGee (6,356,807).

Regarding applicant claim 1, McGee discloses a method of controlling an industrial robot comprising a control unit and a manipulator including a tool with a tip comprising a defined tool center point, for determining an actual position corresponding to an inaccurate programmed position for a spot on a surface of a work piece comprising:

bringing the tip of the tool to be moved from a first programmed position at a distance from the surface in a defined direction towards the work piece (col. 3, lines 4-21, “moving the robot assembly from an initial point toward the contact position”),

bringing the tip to collide with the surface at a collision point (col. 5, line 49-col. 6, line 65, ”positioning the contact surface of the robot arm in the preferred embodiment the tool contact surface... moved toward the contact position"), and

computing the position from the distance between the collision and the first programmed position in the defined direction of movement (col. 15, lines 4-55, "sensing device detects contact and positional values can be obtained and recorded for

each different position that the tool contacts the surface of the workpiece... finally a value representing the new reference frame is calculated based on the obtained positional values").

McGee is silent concerning computing the "**actual position**" from the distance between the collision and first programmed position, however does teach calculating reference frames based on obtained positional values. It would have been obvious to one of ordinary skill in the art at the time of invention to modify the calculation of reference frames to obtain an actual position since this calculation would have been easily obtained given the known position values, motor and torque information of the robot to yield the predictable result of an "actual position".

Regarding applicant claims 2, McGee discloses the method further comprising **moving the tool towards a second position programmed to be positioned behind the work piece seen in the direction of the movement** (col. 8, lines 5-35, "contacts a second point on the external object").

Regarding applicant claims 3-5, McGee discloses the method further comprising **stopping the movement of the tip when a created force between the work piece and the tip has increased to a predefined value** (col. 7, lines 30-45, "threshold may also function of many operating parameters including but not limited to speed, orientation, gravity, and external forces").

Regarding applicant 6, McGee discloses the method **when setting up an industrial robot spot welding cell** (col. 9, lines 60-col. 10, lines 5, "welding tool")).

Regarding applicant claim 7-11, McGee discloses a method of controlling an industrial robot comprising a control unit and a manipulator including a tool with a tip comprising a defined tool center point, for determining an actual position corresponding to an inaccurate programmed position for a spot on a surface of a work piece comprising:

moving the robot from a first position with the tool orientation normal to the surface such that the tool is brought in touch with the surface of the calibration plate creating an actual position (col. 3, lines 4-21, “moving the robot assembly from an initial point toward the contact position”),

reading an actual tool center point position to define a coordinate system (col. 5, line 49-col. 6, line 65, ”positioning the contact surface of the robot arm in the preferred embodiment the tool contact surface... moved toward the contact position"), and

computing two reference distances from the difference between the tool center point positions of the actual position and the first position and computing a wear by the difference of the two reference distances (col. 15, lines 4-55, "sensing device detects contact and positional values can be obtained and recorded for each different position that the tool contacts the surface of the workpiece... finally a value representing the new reference frame is calculated based on the obtained positional values").

McGee is silent concerning computing the “**actual position**" from the distance between the collision and first programmed position, however does teach calculating

reference frames based on obtained positional values. It would have been obvious to one of ordinary skill in the art at the time of invention to modify the calculation of reference frames to obtain an actual position since this calculation would have been easily obtained given the known position values, motor and torque information of the robot to yield the predictable result of an “actual position”.

Regarding applicant claim 12-15, McGee discloses a method of controlling an industrial robot comprising a control unit and a manipulator including a tool with a tip comprising a defined tool center point, for determining an actual position corresponding to an inaccurate programmed position for a spot on a surface of a work piece comprising:

moving the robot from a first position with the tool orientation normal to the surface such that the tool is brought in touch with the surface of the calibration plate creating an actual position (col. 3, lines 4-21, “moving the robot assembly from an initial point toward the contact position”),

reading an actual tool center point position to define a coordinate system (col. 5, line 49-col. 6, line 65, ”positioning the contact surface of the robot arm in the preferred embodiment the tool contact surface... moved toward the contact position"), and

computing two reference distances from the difference between the tool center point positions of the actual position and the first position and computing a wear by the difference of the two reference distances (col. 15, lines 4-55, "sensing device detects contact and positional values can be obtained and recorded for each

different position that the tool contacts the surface of the workpiece... finally a value representing the new reference frame is calculated based on the obtained positional values").

McGee is silent concerning computing the "**actual position**" from the distance between the collision and first programmed position, however does teach calculating reference frames based on obtained positional values. It would have been obvious to one of ordinary skill in the art at the time of invention to modify the calculation of reference frames to obtain an actual position since this calculation would have been easily obtained given the known position values, motor and torque information of the robot to yield the predictable result of an "actual position".

Regarding applicant claim 16, 26, McGee discloses an industrial robot system:

an industrial robot (col. 3, lines 4-21, "moving the robot assembly from an initial point toward the contact position")

a robot tool (col. 5, line 49-col. 6, line 65, "positioning the contact surface of the robot arm in the preferred embodiment the tool contact surface... moved toward the contact position")

a level indicating means comprising a movably attached plate arranged to be moved by a tool tip of the robot (col. 11, lines 25-50, "calibration plaque 32"; col. 15, lines 4-55, "sensing device detects contact and positional values can be obtained and recorded for each different position that the tool contacts the surface of the workpiece... finally a value representing the new reference frame is calculated based on the obtained positional values").

McGee is silent concerning computing the "**actual position**" from the distance between the collision and first programmed position, however does teach calculating reference frames based on obtained positional values. It would have been obvious to one of ordinary skill in the art at the time of invention to modify the calculation of reference frames to obtain an actual position since this calculation would have been easily obtained given the known position values, motor and torque information of the robot to yield the predictable result of an "actual position".

Regarding applicant claim 17-18, McGee discloses the device wherein the level indicating means is arranged to comprise a plate movement limiting device including a fixed stop defining an elevation stop level (col. 11, lines 25-50, "calibration plaque 32; bounded voide of the calibration element may comprise any shape so long as the shape is of a known geometry").

Regarding applicant claim 19-20, McGee discloses the movable plate but is silent concerning **being arranged with a spring suspension and wherein the movable plate is adapted to pivot about an axis**. McGee does disclose that "the calibration element comprises relatively circular shape… that the robot assembly to the plurality of contact positions with different orientation of the tool and contact surface, the location of a center of the bounded void of the calibration plaque can be determined" (col. 12, lines 30-53). It would have been obvious to one of ordinary skill in the art at the time of invention to adapt the movable plate to pivot as taught by McGee in order to allow for multiple contact positions with different orientation in order to obtain various positions.

Regarding applicant claim 21, 27, McGee discloses a computer program product comprising a computer readable medium and instructions recorded on the computer readable medium to influence a processor to carry the steps of:

bringing the tip of the tool to be moved from a first programmed position at a distance from the surface in a defined direction towards the work piece (col. 3, lines 4-21, “moving the robot assembly from an initial point toward the contact position”),

bringing the tip to collide with the surface at a collision point (col. 5, line 49-col. 6, line 65, ”positioning the contact surface of the robot arm in the preferred embodiment the tool contact surface... moved toward the contact position"), and

computing the position from the distance between the collision and the first programmed position in the defined direction of movement (col. 15, lines 4-55, "sensing device detects contact and positional values can be obtained and recorded for each different position that the tool contacts the surface of the workpiece... finally a value representing the new reference frame is calculated based on the obtained positional values").

McGee is silent concerning computing the “**actual position**" from the distance between the collision and first programmed position, however does teach calculating reference frames based on obtained positional values. It would have been obvious to one of ordinary skill in the art at the time of invention to modify the calculation of reference frames to obtain an actual position since this calculation would have been easily obtained given the known position values, motor and torque information of the robot to yield the predictable result of an “actual position”.

Regarding applicant 23-25, McGee discloses the method **wherein the process for working in specific positions is any of the following methods of joining: spot welding, riveting, or clinching** (col. 9, lines 60-col. 10, lines 5, “welding tool").

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WAE LOUIE whose telephone number is (571)272-5195. The examiner can normally be reached on M-F 0700-1530.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas G. Black can be reached on 571-272-6956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Wae Louie/

Examiner, Art Unit 3661

/Thomas G. Black/
Supervisory Patent Examiner, Art Unit 3661